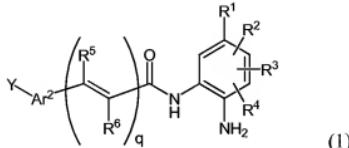


Amendments to the Claims

The following listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A histone deacetylase inhibitor of formula (1):



or a pharmaceutically acceptable salt thereof, wherein

Ar^2 is a saturated or mono- or poly- unsaturated C₅-C₁₄-mono- or fused polycyclic hydrocarbyl, optionally containing one, two, three, or four annular heteroatoms per ring optionally substituted with one or more groups selected from C₁-C₇-alkyl, hydroxy, C₁-C₇-alkoxy, halo, and amino, provided that an annular O or S is not adjacent to another annular O or S;

R^5 and R^6 are independently selected from the group consisting of hydrogen, C₁-C₇-alkyl, aryl, and aralkyl;

R^2 , R^3 and R^4 are independently selected from the group consisting of hydrogen, halogen, -NH₂, nitro, hydroxy, aryl, heterocyclyl, C₃-C₈-cycloalkyl, heteroaryl, C₁-C₇-alkyl, haloalkyl, C₁-C₇-alkenyl, C₁-C₇-alkynyl, C₁-C₇-acyl, C₁-C₇-alkyl-aryloxy, C₁-C₇-alkyl-arylsulfanyl, C₁-C₇-alkyl-arylsulfinyl, C₁-C₇-alkyl-arylsulfonyl, C₁-C₇-alkyl-arylaminosulfonyl, C₁-C₇-alkyl-arylamine, C₁-C₇-alkynyl-C(O)-amine, C₁-C₇-alkenyl-C(O)-amine, C₁-C₇-alkynyl-R⁹, C₁-C₇-alkenyl-R⁹ wherein R⁹ is hydrogen, hydroxy, amino, C₁-C₇-alkyl or C₁-C₇-alkoxy;

q is 0 or 1;

R^1 is a mono-, bi-, or tri-cyclic aryl or heteroaryl, each of which is optionally substituted;

Y is Cy²-X¹- and

Cy^2 is hydrogen, cycloalkyl, aryl, heteroaryl, or heterocyclyl, each of which is optionally substituted and each of which is optionally fused to one or two aryl or heteroaryl rings, or to one or two saturated or partially unsaturated cycloalkyl or heterocyclic rings, and wherein any of the aforementioned rings are optionally substituted; and

X^+ is selected from the group consisting of a covalent bond, $M^+L^2-M^+$, and $L^2-M^2-L^2$ wherein

L^2 , at each occurrence, is independently selected from the group consisting of a chemical bond, C_0-C_4 -hydrocarbyl, C_0-C_4 -hydrocarbyl-(NH)- C_0-C_4 -hydrocarbyl, C_0-C_4 -hydrocarbyl-(S)- C_0-C_4 -hydrocarbyl, and C_0-C_4 -hydrocarbyl-(O)- C_0-C_4 -hydrocarbyl, provided that L^2 is not a chemical bond when X^+ is $M^+L^2-M^+$;

M^+ , at each occurrence, is independently selected from the group consisting of O , $N(R^7)$, S , $S(O)$, $S(O)_2$, $S(O)_2N(R^7)$, $N(R^7)S(O)_2$, $-C(O)-$, $C(O)-NH$, $NH-C(O)-$, $NH-C(O)-O$ and $O-C(O)-NH$, $NH-C(O)-NH$,

R^7 is selected from the group consisting of hydrogen, C_4-C_6 -hydrocarbyl, aryl, aralkyl, acyl, C_0-C_6 -hydrocarbyl-heterocyclyl, and C_0-C_6 -hydrocarbyl-heteroaryl, wherein the hydrocarbyl moieties are optionally substituted with $-OH$, $-NH_2$, $N(H)CH_3$, $N(CH_3)_2$, or halo; and

M^2 is selected from the group consisting of M^1 , heteroarylene, and heterocyclylene, either of which rings optionally substituted Y is Cy^2-X^+- and

Cy^2 is hydrogen, cycloalkyl, aryl, heteroaryl, or heterocyclyl, each of which is optionally substituted and each of which is optionally fused to one or two aryl or heteroaryl rings, or to one or two saturated or partially unsaturated cycloalkyl or heterocyclic rings, and wherein any of the aforementioned rings are optionally substituted; and

X^1 is selected from the group consisting of a covalent bond, $M^1-L^2-M^1$, and $L^2-M^2-L^2$ wherein

L^2 , at each occurrence, is independently selected from the group consisting of a chemical bond, C_0-C_4 -hydrocarbyl, C_0-C_4 -hydrocarbyl-(NH)- C_0-C_4 -

hydrocarbyl, C_0 - C_4 -hydrocarbyl-(S)- C_0 - C_4 -hydrocarbyl, and C_0 - C_4 -hydrocarbyl-(O)- C_0 - C_4 -hydrocarbyl, provided that L^2 is not a chemical bond when X^1 is M^1 - L^2 - M^1 ;

M^1 , at each occurrence, is independently selected from the group consisting of -O-, -N(R^7)-, -S-, -S(O)-, S(O)₂-, -S(O)₂N(R^7)-, -N(R^7)-S(O)₂-, -C(O)-, -C(O)-NH-, -NH-C(O)-, -NH-C(O)-O- and -O-C(O)-NH-, -NH-C(O)-NH-,

NH-,

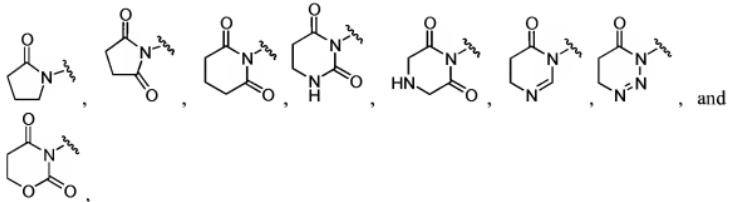
R^7 is selected from the group consisting of hydrogen, C_1 - C_6 -hydrocarbyl, aryl, aralkyl, acyl, C_0 - C_6 -hydrocarbyl-heterocycl, and C_0 - C_6 -hydrocarbyl-heteroaryl, wherein the hydrocarbyl moieties are optionally substituted with -OH, -NH₂, -N(H)CH₃, -N(CH₃)₂, or halo; and

M^2 is selected from the group consisting of M^1 , heteroarylcene, and heterocyclycene, either of which rings optionally is substituted; and provided that

when R^1 is *N*-imidazolyl, R^2 - R^4 are H, q is 0, and Ar² is pyridine, Y is not Cl; and when R^1 is *p*-aminophenyl, R^2 - R^4 are H, q is 0, and Ar² is phenyl, Y is not H.

2. (Original) The compound according to claim 1 wherein R^1 is phenyl, naphthyl, anthracenyl, or fluorenyl.
3. (Original) The compound according to claim 1 wherein R^1 is furanyl or thiencyl.
4. (Original) The compound according to claim 2 wherein R^2 , R^3 , and R^4 are all -H.
5. (Original) The compound according to claim 3 wherein R^2 , R^3 , and R^4 are all -H.
6. (Canceled)
7. (Previously presented) The compound according to claim 1, wherein X^1 is selected from the group consisting of a -N(Z)- C_0 - C_7 -alkyl-, -O- C_0 - C_7 -alkyl-, -C(H)=CH- C_0 - C_7 -alkyl-, -S- C_0 - C_7 -alkyl-, or -C₁- C_7 -alkyl-, wherein Z is -H or -C₁- C_7 -alkyl- optionally substituted with -OH, -NH₂, or halo.
8. (Previously presented) The compound according to claim 1, wherein X^1 is selected from methylene, aminomethyl, and thiomethyl.

9. (Previously presented) The compound according to claim 1, wherein Cy² is selected from



each of which optionally is substituted and optionally is fused to one or more aryl rings.

10. (Previously presented) The compound according to claim 1 wherein Cy² is aryl or heteroaryl, each optionally substituted.
11. (Previously presented) The compound according to claim 1 wherein Cy² is phenyl, pyrimidinyl, benzoimidazolyl or benzothiazolyl, each of which is optionally substituted.
12. (Original) The compound according to claim 11 wherein Cy² has from one and three substituents independently selected from the group consisting of C₁-C₇-alkoxy, halo, di-C₁-C₇-alkylamino-C₁-C₇-alkoxy and heteroaryl.
13. (Original) The compound according to claim 12 wherein the substituents are selected from methoxy, fluoro, chloro, pyridinyl and dimethylamino-ethoxy.
14. (Original) The compound according to claim 13 wherein Cy² is phenyl substituted with one to three CH₃O-.
15. (Previously presented) The compound according to claim 1 wherein Y is (V'-L⁴)-V-L³, and

L^3 is a direct bond, -C₁-C₆-hydrocarbyl, -(C₁-C₃-hydrocarbyl)_{m1}-X'- (C₁-C₃-hydrocarbyl)_{m2}, -NH-(C₀-C₃-hydrocarbyl), (C₁-C₃- hydrocarbyl)-NH-, or -NH-(C₁-C₃-hydrocarbyl)-NH-;

m1 and m2 are independently 0 or 1;

X' is $-N(R^{21})-$, $-C(O)N(R^{21})-$, $N(R^{21})C(O)-$, $-O-$, or $-S-$;

R²¹ is -H, V"--(C₁-C₆-hydrocarbyl)_a;

L^4 is $(C_1-C_6\text{-hydrocarbyl})_a\text{-}M\text{-}(C_1-C_6\text{-hydrocarbyl})_b$;

a and b are independently 0 or 1;

M is -NH-, -NHC(O)-, -C(O)NH-, -C(O)-, -SO₂-, -NHSO₂-, or -S₂NH-

V, V', and V" are independently selected from cycloalkyl, heterocyclyl, aryl, and heteroaryl;

t is 0 or 1.

16. (Original) The compound according to claim 15 wherein Y is V-L³ and L³ is -NH-CH- or -CH-NH-;

V is phenyl optionally substituted with from 1 to 3 moieties independently selected from halo, hydroxy, C₁-C₆-hydrocarbyl, C₁-C₆-hydrocarbyl-oxy or -thio (particularly methoxy or methylthio), wherein each of the hydrocarbyl moieties are optionally substituted with one or more moieties independently selected from halo, nitroso, amino, sulfonamido, and cyano.

17. (Original) The compound according to claim 16 wherein V is an optionally substituted ring moiety selected from:

18. (Previously presented) The compound according to claim 1 wherein Cy² is cycloalkyl, aryl, heteroaryl, or heterocyclyl, each of which optionally is substituted, and each of which optionally is fused to one or more aryl or heteroaryl rings, or to one or more saturated or partially unsaturated cycloalkyl or heterocyclic rings, each of which rings optionally is substituted, provided that when Cy² is a cyclic moiety having -C(O)-, -C(S)-, -S(O)-, or -S(O)₂- in the ring, then Cy² is not additionally substituted with a group comprising an aryl or heteroaryl ring; and

X¹ is selected from the group consisting of a chemical bond, L³, W¹-L³, L³-W¹, W¹-L³-W¹, and L³-W¹-L³, wherein

W¹, at each occurrence, is S, O, or N(R⁹), where R⁹ is selected from the group consisting of hydrogen, alkyl, aryl, and aralkyl; and

L³ is C₁-C₄ alkylene, C₂-C₄ alkenylene, or C₂-C₄ alkynylene.

19. (Previously presented) The compound according to claim 1 wherein Y is selected from:

- a) A₁-L₁-B₁-, wherein A₁ is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocycl; wherein L₁ is -(CH₂)₀₋₁-NH(CH₂)₀₋₁-, -NHC(O)-, or -NHCH₂-; and wherein B₁ is phenyl or a covalent bond;
- b) A₂-L₂-B₂-, wherein A₂ is CH₃(C≡CH₂)-, optionally substituted cycloalkyl, optionally substituted alkyl, or optionally substituted aryl; wherein L₂ is -C≡C-; and wherein B₂ is a covalent bond;
- c) A₃-L₃-B₃-, wherein A₃ is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocycl; wherein L₃ is a covalent bond; and wherein B₃ is -CH₂NH-;
- d) A₄-L₄-B₄-, wherein A₄ is an optionally substituted aryl; wherein L₄ is -NHCH₂-; and wherein B₄ is a thienyl group;
- e) A₅-L₅-B₅-, wherein A₅ is an optionally substituted heteroaryl or optionally substituted heterocycl; wherein L₅ is a covalent bond; and wherein B₅ is -SCH₂-;
- f) morpholinyl-CH₂-
- g) optionally substituted aryl;
- h) A₆-L₆-B₆-, wherein A₆ is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocycl; wherein L₆ is a covalent bond; and wherein B₆ is -NHCH₂-;
- i) A₇-L₇-B₇-, wherein A₇ is an optionally substituted heteroaryl or optionally substituted heterocycl; wherein L₇ is a covalent bond; and wherein B₇ is -CH₂-;
- j) optionally substituted heteroaryl or optionally substituted heterocycl;
- k) A₈-L₈-B₈-, wherein A₈ is optionally substituted phenyl; wherein L₈ is a covalent bond; and wherein B₈ is -O-;
- l) A₉-L₉-B₉-, wherein A₉ is an optionally substituted aryl; wherein L₉ is a covalent bond; and wherein B₉ is a furan group;

m) $A_{10}-L_{10}-B_{10}-$, wherein A_{10} is an optionally substituted heteroaryl or optionally substituted heterocyclyl; wherein L_{10} is $-CH(CH_2CH_3)-$; and wherein B_{10} is $-NHCH_2-$;

n) $A_{11}-L_{11}-B_{11}-$, wherein A_{11} is an optionally substituted heteroaryl or optionally substituted heterocyclyl; wherein L_{11} is a covalent bond; and wherein B_{11} is $-OCH_2-$;

o) $A_{12}-L_{12}-B_{12}-$, wherein A_{12} is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocyclyl; wherein L_{12} is $-NHC(O)-$; and wherein B_{12} is $-N(\text{optionally substituted aryl})CH_2-$;

p) $A_{13}-L_{13}-B_{13}-$, wherein A_{13} is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocyclyl; wherein L_{13} is a covalent bond; and wherein B_{13} is $-NHC(O)-$;

q) $A_{14}-L_{14}-B_{14}-$, wherein A_{14} is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocyclyl; wherein L_{14} is $-NHC(O)(\text{optionally substituted heteroaryl})$; and wherein B_{14} is $-S-S-$;

r) $F_3CC(O)NH-$;

s) $A_{15}-L_{15}-B_{15}-$, wherein A_{15} is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocyclyl; wherein L_{15} is $-CH_2-$; and wherein B_{15} is $-NHCH_2-$;

t) $A_{16}-L_{16}-B_{16}-$, wherein A_{16} is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocyclyl; wherein L_{16} is a covalent bond; and wherein B_{16} is $-N(\text{optionally substituted alkyl})CH_2-$; and

u) $A_{17}-L_{17}-B_{17}-$, wherein A_{17} is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocyclyl; wherein L_{17} is a covalent bond; and wherein B_{17} is $-(\text{optionally substituted aryl}-CH_2)_2-N-$.

20. (Previously presented) The compound according to claim 1 wherein Y is selected from:

a) $D_1-E_1-F_1-$, wherein D_1 is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocyclyl; wherein E_1 is $-CH_2-$ or a covalent bond; and wherein F_1 is a covalent bond;

b) $D_2-E_2-F_2-$, wherein D_2 is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocycl; wherein E_2 is $-NH(CH_2)_{0-2}-$; and wherein F_2 is a covalent bond;

c) $D_3-E_3-F_3-$, wherein D_3 is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocycl; wherein E_3 is $-(CH_2)_{0-2}NH-$; and wherein F_3 is a covalent bond;

d) $D_4-E_4-F_4-$, wherein D_4 is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocycl; wherein E_4 is $-S(CH_2)_{0-2}-$; and wherein F_4 is a covalent bond;

e) $D_5-E_5-F_5-$, wherein D_5 is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocycl; wherein E_5 is $-(CH_2)_{0-2}S-$; and wherein F_5 is a covalent bond; and

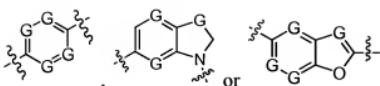
f) $D_6-E_6-F_6-$, wherein D_6 is an optionally substituted aryl, optionally substituted heteroaryl or optionally substituted heterocycl; wherein E_6 is $-NH(CH_2)_{0-2}NH-$; and wherein F_6 is a covalent bond.

21. (Original) The compound according to claim 2 wherein R^2 to R^4 are independently hydrogen, $-NH_2$, nitro, furanyl, chloro, fluoro, butyl, trifluoromethyl, bromo, thiényl, phenyl, $-CHCHC(O)-NH_2$, $-C\equiv CCH_2-R^9$ wherein R^9 is hydrogen, C_1-C_7 -alkyl, hydroxy, amino, or C_1-C_7 -alkoxy.

22. (Original) The compound according to claim 3 wherein R^2 to R^4 are independently hydrogen, $-NH_2$, nitro, furanyl, chloro, fluoro, butyl, trifluoromethyl, bromo, thiényl, phenyl, $-CHCHC(O)-NH_2$, $-C\equiv CCH_2-R^9$ wherein R^9 is hydrogen, C_1-C_7 -alkyl, hydroxy, amino, or C_1-C_7 -alkoxy.

23. (Previously presented) The compound according to claim 1 wherein q is 0 and X^1 is independently selected from the group consisting of a $-NH-CH_2-$, $-S-CH_2-$ and $-CH_2-$.

24. (Original) The compound according to claim 1 wherein Ar^2 has the formula



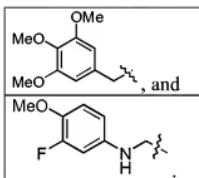
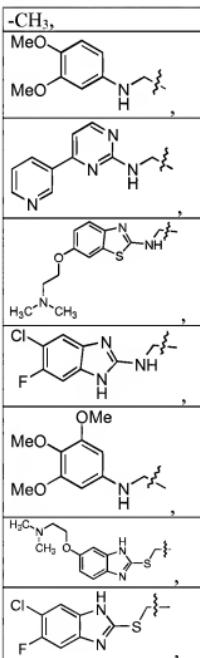
and wherein G, at each occurrence, is independently N or C, and C is optionally substituted.

25. (Original) The compound according to claim 24 wherein Ar² has the formula

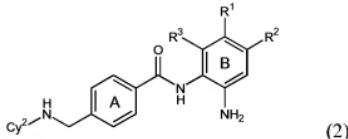


26. (Original) The compound according to claim 24 wherein Ar² is selected from the group consisting of phenylene, benzofuranylene and indolinylene.

27. (Previously presented) The compound according to claim 1 wherein the moiety formed by Cy²-X¹ is selected from:



28. (Previously presented) The compound of claim 1 of formula (2):

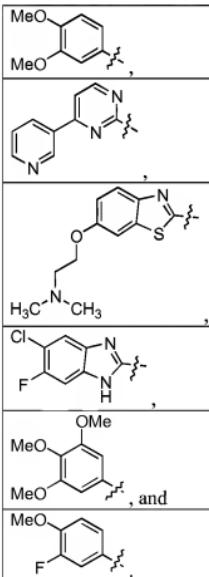


or a pharmaceutically acceptable salt thereof, wherein

R² and R³ are independently selected from the group consisting of hydrogen, trifluoromethyl, butyl, -(CH₂)₃-OH, chloro, fluoro, amino, phenyl, thiophenyl, furanyl, -CH₂CH₂C(O)NH₂, -C≡CCH₂-OH, -C≡CCH₂-OCH₃; and

the A ring is optionally further substituted with from 1 to 3 substituents independently selected from methyl, hydroxy, methoxy, halo, and amino.

29. (Original) The compound according to claim 28 wherein Cy² is selected from:



30. (Original) The compound according to claim 28 wherein the A ring is not further substituted.

31. (Original) The compound according to claim 28 wherein R² and R³ are -H.

32. (Original) A compound according to claim 1 selected from:
N-[2-amino-5-(2-thienyl)phenyl]-4-{{[3,4-dimethoxyphenyl]amino]methyl}benzamide;
N-[2-amino-5-(2-thienyl)phenyl]-4-{{[4-pyridin-3-ylpyrimidin-2-yl]amino]methyl}benzamide;
N-[2-amino-5-(2-thienyl)phenyl]-4-{{[6-[2-(dimethylamino)ethoxy]-1*H*-benzimidazol-2-yl]thio)methyl}benzamide;
N-[2-amino-5-(2-thienyl)phenyl]-4-{{[5-chloro-6-fluoro-1*H*-benzimidazol-2-yl]amino]methyl}benzamide;
N-[2-amino-5-(2-thienyl)phenyl]-5-{{[3,4,5-trimethoxyphenyl]amino]methyl}-1-benzofuran-2-carboxamide;
N-[2-amino-5-(2-thienyl)phenyl]-1-(3,4,5-trimethoxybenzyl)indoline-6-carboxamide;
trans-*N*-[2-amino-5-(2-thienyl)phenyl]-3-(4-{{[3,4,5-trimethoxyphenyl]amino]methyl}phenyl)acrylamide;
N-[2-amino-5-(2-thienyl)phenyl]-4-{{[3-fluoro-4-methoxyphenyl]amino]methyl}benzamide;
N-[2-amino-5-(2-thienyl)phenyl]-4-{{[6-chloro-5-fluoro-1*H*-benzimidazol-2-yl]thio)methyl}benzamide;
and a pharmaceutically acceptable salt of any one or more of the foregoing.

33. – 503. (Canceled)

504. (Previously presented) A pharmaceutical composition comprising a compound according to claims 1 and a pharmaceutically acceptable carrier, diluent, or excipient.

505. – 511. (Canceled)